

What is claimed is:

- 5/11/11
1. A mobile device for use in a cellular communication system, the mobile device comprising:
 - a housing;
 - a user programmable processor within the housing;
 - a thumb wheel extending from the housing, the thumb wheel including: a wheel portion rotatable about an axis; and
 - a control circuit operatively coupled to the thumb wheel, wherein the control circuit provides at least one signal to the processor in response to movement of the wheel portion.
 2. The mobile device of claim 1, wherein the thumb wheel further includes an encoding device for indicating movement of the wheel portion.
 3. The mobile device of claim 1, wherein the processor can receive, store and execute programs input thereto by the user.
 4. The mobile device of claim 1, wherein the wheel portion is transaxially moveable.
 5. The mobile device of claim 1, further including a bar code reader.
 6. The mobile device of claim 1, wherein the bar code reader reads bar code information.
 7. The mobile device of claim 1 further including a display, wherein the display displays a plurality of functions executable by the mobile terminal.

8. The mobile device of claim 1, further including a display, wherein the display displays a plurality of items stored by the mobile terminal.

9. The mobile device of claim 4, wherein the thumb wheel is selectively moveable to allow a user to select at least one function of the plurality of functions executable by the mobile terminal.

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~~10~~. The mobile device of claim ⁶~~8~~, wherein the thumb wheel is selectively moveable to allow a user to select at least one item of the plurality of items stored by the mobile terminal.

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~~11~~. The mobile device of claim 1, wherein the mobile device produces a tone, among a plurality of producible tones, corresponding to a particular movement of the wheel portion.

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~~12~~. The mobile device of claim ⁸~~11~~, wherein the tone varies in pitch according to the corresponding particular movement of the wheel portion.

¹⁰
~~13~~. The mobile device of claim 1, wherein a user can change the contrast of a screen display of the mobile device *via* the thumb wheel.

¹¹
~~14~~. A method of selecting among a plurality of functions executable by a user programmable mobile terminal, comprising the steps of:

5 using an interrupt generator to monitor a thumb wheel for movement of a wheel portion of the thumb wheel;

using the interrupt generator to generate an interrupt request upon movement of the wheel portion, and sending the interrupt request to an interrupt handler;

10 using the interrupt handler to inform a processor that an interrupt relating to movement of the wheel portion has occurred;

using the processor to determine what type of wheel portion movement has occurred, wherein the processor relates a particular wheel portion movement to at least one of the plurality of functions executable by the programmable mobile terminal; and

15 using the processor to perform a routine corresponding to the at least one of the plurality of functions executable by the programmable mobile terminal.

¹²
~~15~~. The method of claim ¹¹~~14~~, wherein the wheel portion is rotatable about an axis.

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~~16~~. The method of claim ¹¹~~14~~, wherein the wheel portion is transaxially moveable.

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~~17~~. The method of claim ¹¹~~14~~ wherein the processor can receive, store and execute programs input thereto by the user.

Sub
A3 18. A mobile device, comprising:
a housing;

5 a user programmable processor within the housing, wherein the processor can receive, store and execute programs input thereto by the user;

a scanner; and

a thumb wheel received within the housing, the thumb wheel including a wheel portion, an encoding device and a control circuit, wherein:
the wheel portion is rotatable about an axis and transaxially
10 moveable;

the encoding device produces at least one signal indicative of movement of the wheel portion; and

the control circuit is coupled to the encoding device for receiving the at least one signal from the encoding device and outputting a signal to the processor in response thereto, wherein

the processor performs a particular routine among a plurality of routines executable by the processor in response to the signal output by the control device.

19. The mobile device of claim 18, wherein the scanner scans bar code information.

Sub
A9 20. A mobile device for use in a cellular communication system, the mobile device comprising:

a portable housing;

a user programmable processor within the housing;

a bar code reader coupled to the processor for reading bar code information;

a thumb wheel extending from the housing, the thumb wheel including:

a wheel portion rotatable around an axis; and

a control circuit operatively coupled to the thumb wheel, wherein the control circuit provides at least one signal to the processor in response to movement of the wheel portion.

21. The mobile device of claim 20, wherein the wheel portion is transaxially moveable.

sub 15 | 22. The mobile device of claim ~~21~~¹⁷, wherein transaxial movement of the wheel portion causes the bar code reader to initiate a bar code read operation.

23. The mobile device of claim 21, further including a display screen, wherein the display screen displays at least one function executable by the mobile terminal.

~~18~~¹⁸ 24. The mobile device of claim ~~23~~¹⁷, wherein the movement of the wheel portion of the thumb wheel causes a cursor highlighting a function on the display screen to move to another function.

~~19~~¹⁹ 25. The mobile device of claim ~~24~~¹⁸, wherein transaxial movement of the wheel portion causes the processor to perform operations associated with the highlighted function.

~~20~~²⁰ 26. The mobile device of claim ~~25~~¹⁹, wherein at least two successive depressions of the wheel in a transaxial direction within a predetermined period of time causes the cursor to highlight a predetermined function.

sub 16 | 27. The mobile device of claim 26, wherein the predetermined function is a bar code read operation.

~~22~~²² 28. The mobile device of claim ~~24~~¹⁸, wherein an audible tone is sounded each time the cursor highlighting a function on the display screen is caused to move by movement of the wheel portion.